

The Strategic Citizen: A Physical Security Model for Strategic Critical Infrastructure Protection (CIP)

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ABSTRACT

The current physical security paradigm that engages an active shooter primarily depends upon law enforcement - which has response time limitations. From the time of the shooter's first shot until his incapacitation, 3 to 4 minutes have elapsed, with the shooter having shot a person every 15 seconds. The Strategic Citizen, derived from the Federal Flight Deck Officer (FFDO) Program, is a conceptual homeland security model for enhancing the physical security of Critical Infrastructure and Key Resources (CIKR) against armed assault.

INTRODUCTION

America's physical security posture for Critical Infrastructure Protection (CIP) suggests it is insufficiently prepared to prevent the consequences of deliberate armed aggression. The current physical security paradigm that engages an active shooter primarily depends upon law enforcement - which has response time limitations. Analysis "based on 5-year data obtained from 24 school shootings in 18 States and 41 workplace shootings in 12 States, from the time of the shooter's first shot until his incapacitation, 3 to 4 minutes have elapsed, with the shooter having shot a person every 15 seconds."¹

A physical security paradigm against an active shooter that averages one casualty every 15 seconds ought to be reconsidered - especially when terrorists have implemented similar tactics. The Strategic Citizen, derived from the Federal Flight Deck Officer (FFDO) Program, is a conceptual homeland security model for enhancing the physical security of Critical Infrastructure and Key Resources (CIKR) and reducing victim personal injury and property loss against armed assault.

For any security countermeasure to be effective, the threat has to be clear. Instead of navigating the nuances between the similarities and/or variations of an active shooter with a terrorist, a different threat construct is necessary. Two common characteristics of active shooters tend to be spontaneity of violence and proximity to targets. For the purpose of this article, the Strategic Citizen addresses the threat of spontaneous close combat; where an active shooter can take advantage of spontaneity

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and proximity amid infrastructure, and where such violence could maximize and/or amplify the aggressor(s) intent to destroy innocent life and damage property.

The Strategic Citizen, within a homeland security framework, is the civilian whose occupation is associated working directly with or in close proximity to CIKR (including schools). By virtue of this proximity, such a person is able to provide localized and/or immediate physical protection to threatened life and property. The citizen in such a role is “strategic” when an armed attack on CIKR could intensify victim injury and property loss; which in turn could have a strategic impact on the functioning of the economy (national, state and local level).² To paraphrase Marine Corps General Charles Krulak’s concept of the Strategic Corporal, when operating in an asymmetric threat environment “the Strategic Citizen will be the most conspicuous symbol of homeland security policy and will potentially influence not only the immediate tactical situation, but the operational and strategic levels as well.”³ The 9/11 Commission identified four failures; one of them is imagination.⁴

The current homeland security approach seems to oscillate between prevention, response, and resiliency measures. In the article *Marrying Prevention and Resiliency: Balancing Approaches to an Uncertain Terrorist Threat*,⁵ Brian A. Jackson suggests a hybrid approach. Attempting to predict and/or prevent future terrorist threats through intelligence sharing and analysis will remain an elusive goal. Commercial air travel being an example, “given public sensitivities and the practical difficulties of collecting and analyzing large amounts of information on every traveler, it is likely that a residual of irreducible threat uncertainty will always remain.”⁶ These same concerns could also apply to the homeland security enterprise as a whole.

Due to potential uncertainty, this threat ambiguity may become a “basis for the argument for focusing on resiliency rather than traditional prevention—if we don’t try to prevent disruptions but instead invest in measures that help us “take the hit” wherever it comes from, then such uncertainties are much less important.”⁷ Jackson proposes that “rather than approach this as an either/or choice between prevention and resiliency, these two strategies can instead be viewed as ingredients for a hybrid preventive strategy: consequence prevention.”⁸ In a similar fashion, the Strategic Citizen seeks to prevent the consequences of spontaneous close combat, not necessarily preventing the aggression from taking place. Furthermore, the Strategic Citizen concept does not aim to substitute existing prevention based security programs, it intends to supplement them.

NEW CONCEPT - EXISTING PROGRAM

The archetype for the Strategic Citizen concept is the FFDO program, which became law in the Homeland Security Act of 2002.⁹ This legislation required the Department of Homeland Security (DHS) to “establish a program to deputize volunteer pilots of air

carriers...to defend the flight decks of aircraft of such air carriers against acts of criminal violence or air piracy.”¹⁰ Arming volunteer pilots provided - an individual - the opportunity to prevent the consequences of criminal violence or air piracy.

As the Strategic Citizen is specific to infrastructure protection, a foundational understanding of what is considered Critical Infrastructure and Key Resources is helpful. Although they each have separate definitions, the Department of Homeland Security (DHS) seems to associate CIKR¹¹ as an integrated entity. The USA PATRIOT Act defines Critical Infrastructure as those “systems and assets, whether physical or virtual, so vital to the United States that the incapacity or destruction of such systems and assets would have a debilitating impact on security, national economic security, national public health or safety, or any combination of those matters (Sec. 1016(e)).”¹² Whereas the Homeland Security Act of 2002 defines Key Resources as “publicly or privately controlled resources essential to the minimal operations of the economy and government (Sec. 2(9)).”¹³ For the purpose of this article, a Strategic Citizen model would use the current definitions of CI and KR, in conjunction with the 18 CIKR sectors identified in the National Infrastructure Protection Plan (NIPP)¹⁴ as a working framework for applicability. Additionally, it is important to keep in mind that aggressors might not only want to destroy CIKR, but weaponize it (e.g. 9/11).

Being that the FFDO program is the model for the Strategic Citizen, baseline programmatic characteristics are critical. Arguably, the most important aspect of the FFDO program is the pilot’s legal authority. There are two vital characteristics that are distinctive to the FFDO program; the first is that *“FFDOs are considered Federal law enforcement officers only for the limited purposes of carrying firearms and using force, including lethal force, to defend the flight deck of an aircraft from air piracy or criminal violence.”*¹⁵ Secondly, *“FFDOs are not granted or authorized to exercise other law enforcement powers such as the power to make arrests, or seek or execute warrants for arrest, or seizure of evidence, or to otherwise act as Federal law enforcement outside the jurisdiction of aircraft flight decks.”*¹⁶ The legal authority of the pilot is specific; FFDOs are not government “agents” in any traditional sense. These important legal stipulations are key distinctions that distinguish the FFDO from other physical security models.

Additionally, the pilot has been given legal protections. A “federal flight deck officer shall not be liable for damages in any action brought in a federal or state court arising out of acts or omissions of the officer defending the flight deck of an aircraft against acts of criminal violence or air piracy unless the officer is guilty of gross negligence and/or willful misconduct.”¹⁷ To ensure accountability, any type of Strategic Citizen model must possess a similar legal framework as the FFDO program.

Eligibility is another crucial component of the FFDO program. Aside from specific airline related requirements, an applicant must be a volunteer (participation is not mandatory) and a U.S. citizen.¹⁸ Participating volunteers “are not eligible for compensation from the Federal Government for services provided as a Federal Flight Deck Officer.”¹⁹ It is also a prerequisite that the applicant successfully complete assessments for psychological, medical or physical ability requirements.²⁰ These eligibility requirements and other programmatic characteristics help ensure that only capable and competent individuals are selected to become FFDOs.

Additionally, while the government provides the training and equipment (including firearm), volunteers are responsible for lodging and travel to the training facilities. These out of pocket expenses are about \$200, not including travel.²¹ Once volunteers have successfully negotiated the eligibility, selection and training process, they are deputized as Federal Flight Deck Officers for a period of five years.²² FFDOs are also required to perform bi-annual training on their own time and at their own expense.²³ The volunteer nature of the FFDO program has other cost benefits as well.

Christopher Bellavita correctly points out that “if we are not attacked again within the next decade, it will be difficult to maintain the nation’s homeland security apparatus. The national government’s budget, let alone most states’ and cities’ budgets, will not sustain it. Homeland security as a national program will atrophy.”²⁴ Furthermore, the target is not necessarily “the airplane, or the mall, or the subway. Bin Laden has made his goal clear. The target is our economy: “We bled Russia for ten years until it went bankrupt and was forced to withdraw in defeat.... We are continuing in the same policy to make America bleed profusely to the point of bankruptcy.””²⁵ Not only does our CIKR physical security model need to be effective, it needs to be affordable.

Using data provided by the Airline Pilots Security Alliance, it is estimated that a ten year annualized FFDO program would cost \$29million per year and protect 97% of airline flights.²⁶ “As a comparison, the federal air marshal program costs \$688[million] per year and protects only about 5% of airline flights.”²⁷ Recognizing the value of volunteer citizens could reduce the financial costs of a statist approach to physical security.

The other potential cost, which is somewhat obscure at this point, is if a mass casualty armed attack (e.g. Mumbai) happened in the United States – what types of security measures would government consider in the aftermath? Would new security programs be introduced? Could we afford it? Would those new programs affect civil liberties? It is important to provide policy makers’ different homeland security models to mull over periodically. If the day comes when homeland security legislation is

extremely urgent, this expanded dialogue performs a valuable service of generating informal pre-debate.

THREAT OWNERSHIP

As stated previously, spontaneous close combat articulates a more appropriate threat construct, which captures distinctive advantages common to armed aggressors – spontaneity and proximity. Furthermore, research recognized by the *National Criminal Justice Reference Service (NCJRS)*²⁸ illustrates response times and the subsequent limitations law enforcement has in swiftly preventing the consequences of active shooter incidents.

Essentially, the Strategic Citizen concept seeks to reduce victim personal injury and property loss from the time an armed aggressor strikes, to the time the aggressor is incapacitated. Data suggests that dependence on a traditional law enforcement centric physical security model, against an active shooter, results in one person shot every 15 seconds until the aggressor is incapacitated. The FFDO program is an existing DHS physical security model for CIP, whose characteristics could be applied to other CIKR sectors for potentially reducing victim personal injury and property loss against spontaneous close combat.

Data is scarce which compares the efficacy of active shooter victim self-protection (with a firearm) encounters, against active shooter law enforcement encounters. Research comparing personal injury and property loss data, between victim self-protection (with a firearm) in an active shooter scenario vis a vis law enforcement would be beneficial. This is an area where further research is necessary.

However, data is available that indicates using a firearm is effective for self-protection. Research by Gary Kleck and Don B. Kates suggests that where a firearm was used in self-defense, risk for personal injury and property loss is reduced in comparison to other self-protective measures. “In general, self-protection measures of all types are effective, in the sense of reducing the risk of property loss in robberies and confrontational burglaries, compared to doing nothing or cooperating with the offender. The most effective form of self-protection is use of a gun.”²⁹ From an injury standpoint, research suggests “although many victims are hurt in personal contact crimes, few are injured after using self-protection measures, and thus there is little injury that could have been provoked by victim resistance.”³⁰ Furthermore, Jongyeon Tark and Gary Kleck infer that “resistance with a gun appears to be most effective in preventing serious injury, though this finding is not statistically significant due to the small number of reported gun cases.”³¹ Again, this is an area that requires further research as it pertains to active shooter incidents. However, extrapolation from this research suggests that expanding the FFDO program to other CIKR sectors, could provide an opportunity to

reduce victim personal injury and property loss in relation to active shooter incidents in the absence of a law enforcement presence.

As part of addressing the arming of pilots, a Government Accountability Office report³² discussed the advantages and disadvantages of arming the crew for enhancing airline security. In the report, the disadvantages of Less-Than-Lethal alternatives are their inability to decisively incapacitate an aggressor. In an active shooter scenario, the effective incapacitation of an aggressor is a key component for reducing victim personal injury and property loss. Although the FFDO operating environment may differ from other CIKR sectors, the characteristics of the FFDO program could provide other CIKR physical security programs an existing framework to build upon. Interestingly, the current threat environment is persuading those beyond aviation to consider an armed physical security model as well.

Merchant mariner Richard Phillips was the Captain of the Maersk Alabama when his ship was attacked by Somali pirates and he was taken hostage. Five days later, military intervention successfully rescued Captain Phillips.³³ Testifying before Congress to address piracy, Captain Phillips suggested that arming the crew could be one component of a holistic maritime security strategy. In his testimony, Captain Phillips stated “that arming the crew, as part of an overall strategy, could provide an effective deterrent under certain circumstances and I believe that a measured capability in this respect should be part of the overall debate about how to defend ourselves against criminals on the sea.”³⁴ Subsequently, the Maersk Alabama was attacked a second time by pirates. On this occasion, however, an embarked security team was able to repel the attack using acoustic devices and small arms fire.³⁵

Although not statistically significant, utilizing basic observation and deductive reasoning implies the Maersk Alabama is an interesting case. The same ship was attacked twice by pirates; in the first attack victims were unarmed, in the second attack the victims were armed. Where firearms were absent, part of the crew was taken hostage. In the attack where firearms were present, the attack was repelled; thereby reducing the risk of victim personal injury and property loss. Others are also educating themselves on potential benefits of embedded armed physical security.

Concerned with an asymmetric threat environment, the Harrold Independent School District in Texas has decided to allow their teachers to be armed; a policy which the Governor supports.³⁶ “In order for teachers and staff to carry a pistol, they must have a Texas license to carry a concealed handgun; must be authorized to carry by the district; must receive training in crisis management and hostile situations and have to use ammunition that is designed to minimize the risk of ricochet in school halls. Superintendent David Thweatt said the small community is a 30-minute drive from the

sheriff's office, leaving students and teachers without protection.”³⁷ This policy indicates that arming teachers provides an opportunity to reduce victim injury and property loss against armed aggression in the absence of a law enforcement presence. With active shooter incidents such as Columbine, Beslan, Virginia Tech etc., educators are starting to revisit and readjust their physical security posture.

Terrorists - albeit aggressors - are adapting and exploiting America's physical security weaknesses. In an incremental and independent manner, the threat of spontaneous close combat has encouraged elements of both the public and private sector to gravitate toward an FFDO type of physical security model. Additionally, the current government centric CIKR physical security model could also be difficult to improve. Privacy concerns, diversity of threats, and budgetary constraints represent public safety challenges for all levels of government. In light of the adapting threats, a more flexible physical security model should be considered.

DECENTRALIZE PHYSICAL SECURITY

In the book, *The Starfish and the Spider: The Unstoppable Power of Leaderless Organizations*³⁸ the logic for a Strategic Citizen model is further explained. Authors Ori Brafman and Rod A. Beckstrom, from an organizational standpoint, compare the effectiveness of centralized organizations against ones that are decentralized. The spider and the starfish – the former considered centralized and the latter decentralized - appear similar where both have many legs for support and function, but are different in terms of survivability. As Brafman and Beckstrom indicate, if a spider were sliced in half it would die. However, if a starfish were sliced in half the result is two functioning starfish.

In the context of the Global War on Terrorism, organizations such as Al Qaeda behave in a decentralized manner and attempt to function like a starfish. However, on 9/11 the centralized physical security model could not prevent the consequences of terrorists seizing commercial aircraft. The creation of the FFDO program is a tacit recognition that a decentralized physical security program was essential for preventing the consequences of terrorists attempting to pirate commercial aircraft.

Luis P. Villarreal provides a “Natural Security” corollary; consider the relationship the immune system has with the body. The immune system does not “depend on a central authority, such as our brain, to initiate a response.”³⁹ In fact, “our immune systems do this automatically, against old or new threats, with no central authority.”⁴⁰ In the context of homeland security, our current physical security model for CIKR lacks an immune system. At present, our CIKR physical security resources addressing spontaneous close combat are primarily dependent upon and dispatched by a governmental brain.

The Strategic Citizen concept is similar, in principle, to other volunteer based public safety initiatives as well. As an example, the American Red Cross provides training and encourages volunteers to learn First Aid, CPR and AED training so that an individual has the “confidence to respond in an emergency situation with skills that can save a life.”⁴¹ For instance, if someone were in need of CPR and immediate medical assistance, it would be unreasonable to suggest that an immediate observer should wait for authorized medical responders in order to provide chest compressions. Additionally, it would seem somewhat strange if fire departments did not encourage individuals to operate fire extinguishers for preventing the consequences of spontaneous fire. These public safety initiatives are effective because they operate in a decentralized and independent manner. The same public safety logic should also apply to physical security approaches.

Brafman and Beckstrom conclude that a hybrid organization is ideal – where elements of both centralization and decentralization are present. The FFDO, indeed, is a hybrid physical security model. The FFDO program is centralized from an administrative standpoint while being decentralized from a security standpoint. The FFDO program’s authorization, accountability and training are provided by a centralized organization (e.g. DHS) – much like the Red Cross administers first aid training. Once trained, FFDO’s become dispersed, providing embedded physical security in a random and decentralized manner; where elements of both the spider and the starfish exist.

FURTHER CONSIDERATIONS

Consequently, further considerations for implementing a Strategic Citizen concept are required. Although the FFDO is an already existing DHS program, I have no expectations for a Strategic Citizen concept to be implemented anytime soon - due to what some may consider its controversial nature. Moreover, I encourage a vigorous debate regarding the merits of this concept. Below are some areas that require further deliberation and certainly more research.

- **Weapon Safety**

It is likely the same arguments made - for and against - arming pilots will reemerge for a Strategic Citizen model.⁴² An open and honest conversation of security models addressing the threat of spontaneous close combat is important. With that said, in 2008 there was an accidental discharge by an FFDO aboard an aircraft; no one was injured. However, the DHS Inspector General (IG) concluded the “locking holsters used by the Federal Flight Deck Officer (FFDO) program increases the likelihood of an accidental discharge of a weapon in an aircraft cockpit.”⁴³ Furthermore, the DHS IG recommended “TSA should discontinue the

use of the locking holster and consider other methods for FFDO to secure their weapons.”⁴⁴

Weapon safety must be a top priority. However, within the context of spontaneous close combat, it is crucial to swiftly incapacitate an armed aggressor that is threatening life and property. Clearly, more research would be needed for the type of authorized weapon and handling requirements as it relates to a Strategic Citizen’s specific CIKR operating environment.

- Fratricide

Certainly, the possibility of friendly fire is a concern for any armed self-defense situation against an active shooter. Law enforcement refers to a similar concern known as deconfliction. In undercover investigations, the possibility exists for investigators to work within close proximity to other undercover agents unknowingly. Within this sometimes hazy operational environment, “agencies may interfere with each other’s cases, causing investigative efforts to be disrupted or, worse, officers to be unintentionally hurt or killed.”⁴⁵

To mitigate this risk, a deconfliction system⁴⁶ has been developed for the purpose of increasing officer safety while operating in an asymmetric threat environment. Although the approach to officer safety through a deconfliction mechanism may not be a precise solution for the Strategic Citizen model in addressing the potential of friendly fire, it could however, provide a foundational framework from which to build. More research and analysis regarding this subject is necessary.

- Legislation

Due to the complicated legal issues associated with a Strategic Citizen model, legislation will likely be required to allow armed volunteer’s to provide CIKR physical security. Legislation may also be needed on the federal level if certain infrastructures span across State lines. As stated earlier, if something does happen and policy makers need an immediate solution, there may be little time for spirited debate. An assortment of solutions must be readily available when circumstances demand options.

- Sector Applicability

As previously mentioned, the current CIKR definitions could indicate sectors where a Strategic Citizen model might apply. Furthermore, each CIKR sector is not going to have the same operating environment as that of an FFDO. Defensive training will need to be sector specific - much like the FFDO – and will need to

address the dynamics of armed interactions as it pertains to spontaneous close combat. Further research is required to analyze how a Strategic Citizen model would operate as it pertains to the respective CIKR sector environments.

It should also be stated that a Strategic Citizen model is not indented to replace in anyway a concealed carry permit or law enforcement. The former will still be necessary for self/home defense; the Strategic Citizen model is specific to CIKR physical security. As for the latter, to paraphrase and reiterate FFDO program guidelines, a Strategic Citizen “would not be granted or authorized to exercise other law enforcement powers such as the power to make arrests, or seek or execute warrants for arrest, or seizure of evidence, or to otherwise act as law enforcement outside their respective and legally defined CIKR jurisdiction.”⁴⁷

CONCLUSION

The current homeland security CIKR physical security paradigm for an active shooter is insufficient in rapidly preventing the consequences of spontaneous close combat. When research suggests a person is shot every 15 seconds in an active shooter scenario, the current CIKR physical security paradigm should be revisited. A Strategic Citizen model, based on characteristics from the FFDO program, provides an opportunity to reduce victim injury and property loss against spontaneous close combat in the absence of law enforcement. It is an unreasonable expectation for government to provide immediate CIKR physical protection when an armed aggressor strikes; especially if there are multiple and/or simultaneous attacks. The creation of the FFDO program is at least an implied acknowledgement of government limitations.

In an asymmetric and uncertain threat environment, where Americans demand freedom, increased security and fiscal discipline – responsible volunteer citizens may be required to provide decentralized CIKR physical security against the threat of spontaneous close combat.

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² General Charles Krulak, “The Strategic Corporal: Leadership in the Three Block War,” *Marines Magazine*, January 1999. http://www.au.af.mil/au/awc/awcgate/usmc/strategic_corporal.htm

³ Ibid.

⁴ The 9/11 Commission Report. *Final Report of the National Commission on Terrorist Attacks upon the United States*, New York: W.W. Norton, p.339; Christopher Bellavita, “What is Preventing Homeland Security?,” *Homeland Security Affairs* 1, no. 1 (Summer 2005) <http://www.hsaj.org/?article=1.1.3>

⁵ Brian Jackson, “Marrying Prevention and Resiliency: Balancing Approaches to an Uncertain Terrorist Threat,” *RAND*, 2008, http://www.rand.org/pubs/occasional_papers/2008/RAND_OP236.pdf

⁶ Ibid., p.10

⁷ Ibid.

⁸ Ibid.

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- ⁹ Library of Congress. Thomas. Homeland Security Act 2002, Title XIV. <http://thomas.loc.gov/cgi-bin/query/F?c107:1:./temp/~c107uCmrMQ:e528114>;
- ¹⁰ Ibid.
- ¹¹ Department of Homeland Security. *National Infrastructure Protection Plan 2009 (NIPP)*. http://www.dhs.gov/xlibrary/assets/NIPP_Plan.pdf
- ¹² John Moteff and Paul Parfomak, , *Critical Infrastructure and Key Assets: Definition and Identification*, CRS Report for Congress, RL 32631 (October 2004), p. 7. <http://digital.library.unt.edu/govdocs/crs/data/2004/meta-crs-5954.tkl>; Library of Congress THOMAS, *Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism (USA PATRIOT ACT) Act of 2001*, <http://thomas.loc.gov/cgi-bin/query/z?c107:H.R.3162.ENR>;
- ¹³ Ibid., p.7; Library of Congress THOMAS, *Homeland Security Act of 2002*, <http://thomas.loc.gov/cgi-bin/query/z?c107:h.r.5005.enr>;
- ¹⁴ Department of Homeland Security, *National Infrastructure Protection Plan (NIPP)* http://www.dhs.gov/files/programs/editorial_0827.shtm
- ¹⁵ Department of Homeland Security, Transportation Security Administration. *Federal Flight Deck Officer Important Information*. http://www.tsa.gov/lawenforcement/programs/ffdo_information.shtm
- ¹⁶ Ibid.
- ¹⁷ Ibid.
- ¹⁸ Department of Homeland Security, Transportation Security Administration. *Federal Flight Deck Officer Eligibility Criteria*. http://www.tsa.gov/lawenforcement/programs/ffdo_eligibility.shtm
- ¹⁹ Department of Homeland Security, Transportation Security Administration. *Federal Flight Deck Officers*. <http://www.tsa.gov/lawenforcement/programs/ffdo.shtm>
- ²⁰ Department of Homeland Security, Transportation Security Administration. *Federal Flight Deck Officers Selection and Training*. http://www.tsa.gov/lawenforcement/programs/ffdo_training.shtm
- ²¹ Ibid.
- ²² See, *Federal Flight Deck Officer Important Information*
- ²³ See, *Federal Flight Deck Officers Selection and Training*
- ²⁴ Christopher Bellavita, “Changing Homeland Security: Shape Patterns, Not Programs,” *Homeland Security Affairs* 2, no. 3 (2006), p.6. <http://www.hsaj.org/?article=2.3.5>
- ²⁵ See, “What is Preventing Homeland Security?,” p.5.
- ²⁶ Airline Pilots Security Alliance. *Standardized Federal Flight Deck Officer (FFDO) Program Costs*. <http://www.secure-skies.org/armedpilotcosts.php>
- ²⁷ Ibid.
- ²⁸ See, *Patrol Response Challenge*; National Criminal Justice Reference Service (NCJRS)
- ²⁹ Gary Kleck and Don B. Kates. *Armed: New Perspectives on Gun Control*. Amherst:Prometheus Books, 2001. p. 294.
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³⁸ Ori Brafman, and Rod A. Beckstrom. *The Starfish and the Spider: The Unstoppable Power of Leaderless Organizations*. New York: Penguin Group, 2006

³⁹ Luis P. Villarreal. 2008. "From Bacteria to Belief: Immunity and Security." In *Natural Security: A Darwinian Approach to a Dangerous World*, ed. Raphael D. Sagarin and Terence Taylor, 44. Berkley: University of California Press.

⁴⁰ Ibid.

⁴¹ Prepare for Emergencies with American Red Cross First Aid, CPR and Automated External Defibrillator (AED) Courses. *American Red Cross*. http://www.redcross.org/static/file_cont5294_lango_1934.pdf

⁴² See, *Information Concerning the Arming of Commercial Pilots*,

⁴³ Department of Homeland Security, Office of Inspector General, Semiannual Report to Congress (April 1, 2008 – September 30, 2009), p.28.

http://www.dhs.gov/xoig/assets/semiannlrpts/OIG_SAR_Apr08_Sep08.pdf

⁴⁴ Ibid., p.29.

⁴⁵ Regional Information Sharing Systems, RISSafe™, Officer Safety Event Deconfliction System. <http://www.riss.net/rissafe.aspx>

⁴⁶ Ibid.

⁴⁷ See, *Federal Flight Deck Officer Important Information*